

DAFTAR PUSTAKA

- Abioye, O. P., Umaru, S., Aransiola, S. A., Oyewole, O. A., Maddela, N. R., & Prasad, R. (2025). Production of laccase by *Bacillus subtilis* and *Aspergillus niger* for treatment of textile effluent. *Sustainable Chemistry for the Environment*, 9. <https://doi.org/10.1016/j.scenv.2025.100222>
- Agarwal, N., Solanki, V. S., Gacem, A., Hasan, M. A., Pare, B., Srivastava, A., Singh, A., Yadav, V. K., Yadav, K. K., Lee, C., Lee, W., Chaiprapat, S., & Jeon, B. H. (2022). Bacterial Laccases as Biocatalysts for the Remediation of Environmental Toxic Pollutants: A Green and Eco-Friendly Approach—A Review. In *Water (Switzerland)* (Vol. 14, Issue 24). MDPI. <https://doi.org/10.3390/w14244068>
- Agrawal, K., Chaturvedi, V., & Verma, P. (2018). Fungal laccase discovered but yet undiscovered. In *Bioresources and Bioprocessing* (Vol. 5, Issue 1). Springer Science and Business Media Deutschland GmbH. <https://doi.org/10.1186/s40643-018-0190-z>
- Ali, M., Bhardwaj, P., Ishqi, H. M., Shahid, M., & Islam, A. (2023). Laccase Engineering: Redox Potential Is Not the Only Activity-Determining Feature in the Metalloproteins. In *Molecules* (Vol. 28, Issue 17). Multidisciplinary Digital Publishing Institute (MDPI). <https://doi.org/10.3390/molecules28176209>
- Anita, S. H., Ardiati, F. C., Ramadhan, K. P., Laksana, R. P. B., Sari, F. P., Nurhayat, O. D., & Yanto, D. H. Y. (2022). Decolorization of Synthetic Dyes by Tropical Fungi Isolated from Taman Eden 100, Toba Samosir, North Sumatra, Indonesia. *HAYATI Journal of Biosciences*, 29(4), 417–427. <https://doi.org/10.4308/hjb.29.4.417-427>
- Ardila-Leal, L. D., Monterey-Gutiérrez, P. A., Poutou-Piñales, R. A., Quevedo-Hidalgo, B. E., Galindo, J. F., & Pedroza-Rodríguez, A. M. (2021). Recombinant laccase rPOXA 1B real-time, accelerated and molecular dynamics stability study. *BMC Biotechnology*, 21(1). <https://doi.org/10.1186/s12896-021-00698-3>
- Arora, P. K. (2020). Bacilli-Mediated Degradation of Xenobiotic Compounds and Heavy Metals. In *Frontiers in Bioengineering and Biotechnology* (Vol. 8). Frontiers Media S.A. <https://doi.org/10.3389/fbioe.2020.570307>
- Arregui, L., Ayala, M., Gómez-Gil, X., Gutiérrez-Soto, G., Hernández-Luna, C. E., Herrera De Los Santos, M., Levin, L., Rojo-Domínguez, A., Romero-Martínez, D., Saparrat, M. C. N., Trujillo-Roldán, M. A., & Valdez-Cruz, N. A. (2019). Laccases: structure, function, and potential application in water bioremediation.

- In *Microbial Cell Factories* (Vol. 18, Issue 1). BioMed Central Ltd. <https://doi.org/10.1186/s12934-019-1248-0>
- Azanaw, A., Birlie, B., Teshome, B., & Jemberie, M. (2022). Textile effluent treatment methods and eco-friendly resolution of textile wastewater. *Case Studies in Chemical and Environmental Engineering*, 6. <https://doi.org/10.1016/j.cscee.2022.100230>
- Baltierra-Trejo, E., Márquez-Benavides, L., & Sánchez-Yáñez, J. M. (2015). Inconsistencies and ambiguities in calculating enzyme activity: The case of laccase. *Journal of Microbiological Methods*, 119, 126–131. <https://doi.org/10.1016/j.mimet.2015.10.007>
- Cano, A., Acosta, M., & Arnao, M. B. (2000). A method to measure antioxidant activity in organic media: Application to lipophilic vitamins. *Redox Report*, 5(6), 365–370. <https://doi.org/10.1179/135100000101535933>
- Cao, X., Wang, H., Zhang, S., Nishimura, O., & Li, X. (2018). Azo dye degradation pathway and bacterial community structure in biofilm electrode reactors. *Chemosphere*, 208, 219–225. <https://doi.org/10.1016/j.chemosphere.2018.05.190>
- Chhabra, M., Mishra, S., & Sreekrishnan, T. R. (2009a). Laccase/mediator assisted degradation of triarylmethane dyes in a continuous membrane reactor. *Journal of Biotechnology*, 143(1), 69–78. <https://doi.org/10.1016/j.jbiotec.2009.06.011>
- Chhabra, M., Mishra, S., & Sreekrishnan, T. R. (2009b). Laccase/mediator assisted degradation of triarylmethane dyes in a continuous membrane reactor. *Journal of Biotechnology*, 143(1), 69–78. <https://doi.org/10.1016/j.jbiotec.2009.06.011>
- Chhabra, M., Mishra, S., & Sreekrishnan, T. R. (2015). Immobilized laccase mediated dye decolorization and transformation pathway of azo dye acid red 27. *Journal of Environmental Health Science and Engineering*, 13(1). <https://doi.org/10.1186/s40201-015-0192-0>
- Christensen, N. J., & Kepp, K. P. (2013). Stability Mechanisms of a Thermophilic Laccase Probed by Molecular Dynamics. *PLoS ONE*, 8(4). <https://doi.org/10.1371/journal.pone.0061985>
- Conigliaro, P., Portaccio, M., Lepore, M., & Delfino, I. (2023). Optical Properties of Laccases and Their Use for Phenolic Compound Detection and Quantification: A Brief Review. In *Applied Sciences (Switzerland)* (Vol. 13, Issue 23). Multidisciplinary Digital Publishing Institute (MDPI). <https://doi.org/10.3390/app132312929>

- Dalmaso, G. Z. L., Ferreira, D., & Vermelho, A. B. (2015). Marine extremophiles a source of hydrolases for biotechnological applications. In *Marine Drugs* (Vol. 13, Issue 4, pp. 1925–1965). MDPI AG. <https://doi.org/10.3390/md13041925>
- Daniel, R. M., Danson, M. J., Eisenthal, R., Lee, C. K., & Peterson, M. E. (2008). The effect of temperature on enzyme activity: New insights and their implications. In *Extremophiles* (Vol. 12, Issue 1, pp. 51–59). <https://doi.org/10.1007/s00792-007-0089-7>
- Dassanayake, R. S., Acharya, S., & Abidi, N. (2021). Recent advances in biopolymer-based dye removal technologies. In *Molecules* (Vol. 26, Issue 15). MDPI AG. <https://doi.org/10.3390/molecules26154697>
- Dong, C. Di, Tiwari, A., Anisha, G. S., Chen, C. W., Singh, A., Haldar, D., Patel, A. K., & Singhanian, R. R. (2023). Laccase: A potential biocatalyst for pollutant degradation. In *Environmental Pollution* (Vol. 319). Elsevier Ltd. <https://doi.org/10.1016/j.envpol.2023.120999>
- Dong, J. (2021). On catalytic kinetics of enzymes. *Processes*, 9(2), 1–20. <https://doi.org/10.3390/pr9020271>
- Durão, P., Bento, I., Fernandes, A. T., Melo, E. P., Lindley, P. F., & Martins, L. O. (2006). Perturbations of the T1 copper site in the CotA laccase from *Bacillus subtilis*: Structural, biochemical, enzymatic and stability studies. *Journal of Biological Inorganic Chemistry*, 11(4), 514–526. <https://doi.org/10.1007/s00775-006-0102-0>
- Duval, J., Pecher, V., Poujol, M., & Lesellier, E. (2016). Research advances for the extraction, analysis and uses of anthraquinones: A review. In *Industrial Crops and Products* (Vol. 94, pp. 812–833). Elsevier B.V. <https://doi.org/10.1016/j.indcrop.2016.09.056>
- Egbewale, S. O., Kumar, A., Mokoena, M. P., & Olaniran, A. O. (2024). Purification, characterization and three-dimensional structure prediction of multicopper oxidase Laccases from *Trichoderma lixii* FLU1 and *Talaromyces pinophilus* FLU12. *Scientific Reports*, 14(1). <https://doi.org/10.1038/s41598-024-63959-z>
- Elsayed, A. M., Mahmoud, M., Abdel Karim, G. S. A., Abdelraof, M., & Othman, A. M. (2023). Purification and biochemical characterization of two laccase isoenzymes isolated from *Trichoderma harzianum* S7113 and its application for bisphenol A degradation. *Microbial Cell Factories*, 22(1). <https://doi.org/10.1186/s12934-022-02011-z>

- Ezike, T. C., Ezugwu, A. L., Udeh, J. O., Eze, S. O. O., & Chilaka, F. C. (2020). Purification and characterisation of new laccase from *Trametes polyzona* WRF03. *Biotechnology Reports*, 28. <https://doi.org/10.1016/j.btre.2020.e00566>
- Fernandes, T. A. R., Silveira, W. B. da, Passos, F. M. L., & Zucchi, T. D. (2014). Laccases from <i>Actinobacteria</i>—What We Have and What to Expect. *Advances in Microbiology*, 04(06), 285–296. <https://doi.org/10.4236/aim.2014.46035>
- Guan, G., Li, B., Xu, L., Qian, J., Zou, B., Huo, S., Ding, Z., Cui, K., & Wang, F. (2025). Improving the Properties of Laccase Through Heterologous Expression and Protein Engineering. In *Microorganisms* (Vol. 13, Issue 6). Multidisciplinary Digital Publishing Institute (MDPI). <https://doi.org/10.3390/microorganisms13061422>
- Guan, Z. B., Shui, Y., Song, C. M., Zhang, N., Cai, Y. J., & Liao, X. R. (2015). Efficient secretory production of CotA-laccase and its application in the decolorization and detoxification of industrial textile wastewater. *Environmental Science and Pollution Research*, 22(12), 9515–9523. <https://doi.org/10.1007/s11356-015-4426-6>
- Guo, X., Zhou, S., Wang, Y., Song, J., Wang, H., Kong, D., Zhu, J., Dong, W., He, M., Hu, G., & Ruan, Z. (2016). Characterization of a highly thermostable and organic solvent-tolerant copper-containing polyphenol oxidase with dye-decolorizing ability from *Kurthia Huakuii* LAM0618T. *PLoS ONE*, 11(10). <https://doi.org/10.1371/journal.pone.0164810>
- Hadibarata, T., Yusoff, A. R. M., & Kristanti, R. A. (2012). Decolorization and metabolism of anthraquinone-type dye by laccase of white-rot fungi *Polyporus* sp. S133. *Water, Air, and Soil Pollution*, 223(2), 933–941. <https://doi.org/10.1007/s11270-011-0914-6>
- Hamid, B., Bashir, Z., Yattoo, A. M., Mohiddin, F., Majeed, N., Bansal, M., Poczai, P., Almalki, W. H., Sayyed, R. Z., Shati, A. A., & Alfaifi, M. Y. (2022). Cold-Active Enzymes and Their Potential Industrial Applications—A Review. In *Molecules* (Vol. 27, Issue 18). MDPI. <https://doi.org/10.3390/molecules27185885>
- Janusz, G., Pawlik, A., Świdarska-Burek, U., Polak, J., Sulej, J., Jarosz-Wilkolażka, A., & Paszczyński, A. (2020). Laccase properties, physiological functions, and evolution. In *International Journal of Molecular Sciences* (Vol. 21, Issue 3). MDPI AG. <https://doi.org/10.3390/ijms21030966>
- Jiang, S., Ren, D., Wang, Z., Zhang, S., Zhang, X., & Chen, W. (2022). Improved stability and promoted activity of laccase by One-Pot encapsulation with Cu (PABA) nanoarchitectonics and its application for removal of Azo dyes.

Ecotoxicology and Environmental Safety, 234.
<https://doi.org/10.1016/j.ecoenv.2022.113366>

- Jones, S. M., & Solomon, E. I. (2015). Electron transfer and reaction mechanism of laccases. In *Cellular and Molecular Life Sciences* (Vol. 72, Issue 5, pp. 869–883). Birkhauser Verlag AG. <https://doi.org/10.1007/s00018-014-1826-6>
- Kabir, M. F., & Ju, L. K. (2023). On optimization of enzymatic processes: Temperature effects on activity and long-term deactivation kinetics. *Process Biochemistry*, 130, 734–746. <https://doi.org/10.1016/j.procbio.2023.05.031>
- Kenzom, T., Srivastava, P., & Mishra, S. (2014). Structural insights into 2,2'-azino-bis(3-ethylbenzothiazoline-6-sulfonic acid) (ABTS)-mediated degradation of reactive blue 21 by engineered *Cyathus bulleri* laccase and characterization of degradation products. *Applied and Environmental Microbiology*, 80(24), 7484–7495. <https://doi.org/10.1128/AEM.02665-14>
- Khan, S., & Borah, D. (2024). Microbial cell factories in the degradation of azo-dye and their limiting factors: An insight. *Cleaner Water*, 2, 100034. <https://doi.org/10.1016/j.clwat.2024.100034>
- Kiernan, J. A. (n.d.). *Classii cation and naming of dyes, stains and uorochromes*.
- Kochhar, N., Kavya, I. K., Shrivastava, S., Ghosh, A., Rawat, V. S., Sodhi, K. K., & Kumar, M. (2022). Perspectives on the microorganism of extreme environments and their applications. In *Current Research in Microbial Sciences* (Vol. 3). Elsevier Ltd. <https://doi.org/10.1016/j.crmicr.2022.100134>
- Kumar, C. G., Mongolla, P., Basha, A., Joseph, J., Sarma, V. U. M., & Kamal, A. (2011). Decolorization and Biotransformation of Triphenylmethane Dye, Methyl Violet, by *Aspergillus* sp. Isolated from Ladakh, India. *Journal of Microbiology and Biotechnology*, 21(3), 267–273. <https://doi.org/10.4014/jmb.1011.11010>
- Kumari, A., Kishor, N., & Guptasarma, P. (2018). Characterization of a mildly alkalophilic and thermostable recombinant *Thermus thermophilus* laccase with applications in decolourization of dyes. *Biotechnology Letters*, 40(2), 285–295. <https://doi.org/10.1007/s10529-017-2461-8>
- Laksmi, F. A., Nirwantono, R., Nuryana, I., & Agustriana, E. (2022). Expression and characterization of thermostable D-allulose 3-epimerase from *Arthrobacter psychrolactophilus* (Ap DAEase) with potential catalytic activity for bioconversion of D-allulose from D-fructose. *International Journal of Biological Macromolecules*, 214, 426–438. <https://doi.org/10.1016/j.ijbiomac.2022.06.117>

- Li, H. hong, Wang, Y. tao, Wang, Y., Wang, H. xia, Sun, K. kai, & Lu, Z. mei. (2019). Bacterial degradation of anthraquinone dyes. In *Journal of Zhejiang University: Science B* (Vol. 20, Issue 6, pp. 528–540). Zhejiang University Press. <https://doi.org/10.1631/jzus.B1900165>
- Li, X., Liu, D., Wu, Z., Li, D., Cai, Y., Lu, Y., Zhao, X., & Xue, H. (2020). Multiple tolerances and dye decolorization ability of a novel laccase identified from staphylococcus haemolyticus. *Journal of Microbiology and Biotechnology*, 30(4), 615–621. <https://doi.org/10.4014/JMB.1910.10061>
- Lin, H., Yu, Z., Wang, Q., Liu, Y., Jiang, L., Xu, C., & Xian, M. (2023). Application of Laccase Catalysis in Bond Formation and Breakage: A Review. In *Catalysts* (Vol. 13, Issue 4). MDPI. <https://doi.org/10.3390/catal13040750>
- Loveland, J., Gutshall, K., Kasmir, J., Prema, P., & Brenchley, J. E. (1994). Characterization of Psychrotrophic Microorganisms Producing 3-Galactosidase Activities. In *APPLIED AND ENVIRONMENTAL MICROBIOLOGY*. <https://journals.asm.org/journal/aem>
- Ma, H., Zheng, N., Chen, Y., & Jiang, L. (2021). Laccase-like catalytic activity of Cu-tannic acid nanohybrids and their application for epinephrine detection. *Colloids and Surfaces A: Physicochemical and Engineering Aspects*, 613. <https://doi.org/10.1016/j.colsurfa.2020.126105>
- Maati, J., Polak, J., Janczarek, M., Graż, M., Smaali, I., & Jarosz-Wilkolażka, A. (2024). Biochemical characterization of a recombinant laccase from Halalkalibacterium halodurans C-125 and its application in the biotransformation of organic compounds. *Biotechnology Letters*, 46(6), 1199–1218. <https://doi.org/10.1007/s10529-024-03532-w>
- Mani, P., Fidal, V. T., Bowman, K., Breheny, M., Chandra, T. S., Keshavarz, T., & Kyazze, G. (2019). Degradation of Azo Dye (Acid Orange 7) in a Microbial Fuel Cell: Comparison Between Anodic Microbial-Mediated Reduction and Cathodic Laccase-Mediated Oxidation. *Frontiers in Energy Research*, 7. <https://doi.org/10.3389/fenrg.2019.00101>
- Mardawati, E., Mandra Harahap, B., Andoyo, R., Wulandari, N., & Maulida Rahmah, D. (n.d.). *KARAKTERISASI PRODUK DAN PEMODELAN KINETIKA ENZIMATIK ALFA-AMILASE PADA PRODUKSI SIRUP GLUKOSA DARI PATI JAGUNG (ZEA MAYS)*. 01. <http://jurnal.unpad.ac.id/justin>
- Martin, E., Dubessay, P., Record, E., Audonnet, F., & Michaud, P. (2024). Recent advances in laccase activity assays: A crucial challenge for applications on complex substrates. In *Enzyme and Microbial Technology* (Vol. 173). <https://doi.org/10.1016/j.enzmictec.2023.110373>

- Mayer, A. M., & Staples, R. C. (n.d.). *Laccase: new functions for an old enzyme*. www.elsevier.com/locate/phytochem
- Megan Mae, C., & Dave Arthur R, R. (2022). An Investigation on the Effects of Varying Temperatures on Gelatin Denaturation in Response to Enzymatic Reactions from Fruit Extracts. *Journal of Industrial Biotechnology*, 3(1). <https://doi.org/10.36959/967/629>
- Moon, S. J., Kim, H. W., & Jeon, S. J. (2018). Biochemical characterization of a thermostable cobalt- or copper-dependent polyphenol oxidase with dye decolorizing ability from *Geobacillus* sp. JS12. *Enzyme and Microbial Technology*, 118, 30–36. <https://doi.org/10.1016/j.enzmictec.2018.06.011>
- Mukhopadhyay, M., & Banerjee, R. (2015). Purification and biochemical characterization of a newly produced yellow laccase from *Lentinus squarrosulus* MR13. *3 Biotech*, 5(3), 227–236. <https://doi.org/10.1007/s13205-014-0219-8>
- Murugesan, K., Yang, I. H., Kim, Y. M., Jeon, J. R., & Chang, Y. S. (2009). Enhanced transformation of malachite green by laccase of *Ganoderma lucidum* in the presence of natural phenolic compounds. *Applied Microbiology and Biotechnology*, 82(2), 341–350. <https://doi.org/10.1007/s00253-008-1819-1>
- Nirwantono, R., Laksmi, F. A., Nuryana, I., Firdausa, S., Herawan, D., Giyandini, R., & Hidayat, A. A. (2024). Exploring an L-arabinose isomerase from cryophile bacteria *Arthrobacter psychrolactophilus* B7 for D-tagatose production. *International Journal of Biological Macromolecules*, 254. <https://doi.org/10.1016/j.ijbiomac.2023.127781>
- Olmeda, I., Casino, P., Collins, R. E., Sendra, R., Callejón, S., Huesa, J., Soares, A. S., Ferrer, S., & Pardo, I. (2021). Structural analysis and biochemical properties of laccase enzymes from two *Pediococcus* species. *Microbial Biotechnology*, 14(3), 1026–1043. <https://doi.org/10.1111/1751-7915.13751>
- Osma, J. F., Toca-Herrera, J. L., & Rodríguez-Couto, S. (2010). Transformation pathway of Remazol Brilliant Blue R by immobilised laccase. *Bioresource Technology*, 101(22), 8509–8514. <https://doi.org/10.1016/j.biortech.2010.06.074>
- Othman, A. M., Rodríguez-Couto, S., & Mechichi, T. (2022). Editorial: Microbial Laccases: Recent Advances and Biotechnological Applications. In *Frontiers in Bioengineering and Biotechnology* (Vol. 10). Frontiers Media S.A. <https://doi.org/10.3389/fbioe.2022.922223>
- Pavlović, J., Farkas, Z., Kraková, L., & Pangallo, D. (2022). Color Stains on Paper: Fungal Pigments, Synthetic Dyes and Their Hypothetical Removal by Enzymatic

- Approaches. In *Applied Sciences (Switzerland)* (Vol. 12, Issue 19). MDPI. <https://doi.org/10.3390/app12199991>
- Pereira, J. de C., Giese, E. C., Moretti, M. M. de S., Gomes, A. C. dos S., Perrone, O. M., Boscolo, M., da Silva, R., Gomes, E., & Martins, D. A. B. (2017). Effect of Metal Ions, Chemical Agents and Organic Compounds on Lignocellulolytic Enzymes Activities. In *Enzyme Inhibitors and Activators*. InTech. <https://doi.org/10.5772/65934>
- Prins, A., Kleinsmidt, L., Khan, N., Kirby, B., Kudanga, T., Vollmer, J., Pleiss, J., Burton, S., & Le Roes-Hill, M. (2015). The effect of mutations near the T1 copper site on the biochemical characteristics of the small laccase from *Streptomyces coelicolor* A3(2). *Enzyme and Microbial Technology*, 68, 23–32. <https://doi.org/10.1016/j.enzmictec.2014.10.003>
- Ramadhan, K. P., Yanto, D. H. Y., & Teh, A. H. (2025). Characterization of laccase from *Salipiger* sp. CCB-MM3 with decolorization activity against azo, anthraquinone and triarylmethane dyes. *Biocatalysis and Agricultural Biotechnology*, 69. <https://doi.org/10.1016/j.bcab.2025.103757>
- Rapuano, R., & Graziano, G. (2022). Some Clues about Enzymes from Psychrophilic Microorganisms. In *Microorganisms* (Vol. 10, Issue 6). MDPI. <https://doi.org/10.3390/microorganisms10061161>
- Reiss, R., Ihssen, J., & Thöny-Meyer, L. (2011). *Bacillus pumilus* laccase: A heat stable enzyme with a wide substrate spectrum. *BMC Biotechnology*, 11. <https://doi.org/10.1186/1472-6750-11-9>
- Ren, J., Danchana, K., Sasaki, K., & Kaneta, T. (2023). Fluorometric assay of laccase in mushroom extracts and comparisons with absorption spectrophotometry. *Journal of Food Composition and Analysis*, 123. <https://doi.org/10.1016/j.jfca.2023.105627>
- Robinson, P. K. (2015). Enzymes: principles and biotechnological applications. *Essays in Biochemistry*, 59, 1–41. <https://doi.org/10.1042/BSE0590001>
- Routoula, E., & Patwardhan, S. V. (2020). Degradation of Anthraquinone Dyes from Effluents: A Review Focusing on Enzymatic Dye Degradation with Industrial Potential. In *Environmental Science and Technology* (Vol. 54, Issue 2, pp. 647–664). American Chemical Society. <https://doi.org/10.1021/acs.est.9b03737>
- Sharif, N. (2024). Effects of pH on Enzyme Activity in Pakistan. *Journal of Chemistry*, 3(3), 49–59. <https://doi.org/10.47672/jchem.2512>

- Sharma, A., Muthupriya, M., Raj, R., Shameen, Z., Sm, V., Niyonzima, F. N., & More, S. S. (2021). Properties of Laccase of *Bacillus marisflavi* Strain BB4 and its Synthetic Dyes Decolorization Analysis. *Proceedings of the National Academy of Sciences India Section B - Biological Sciences*, 91(2), 477–485. <https://doi.org/10.1007/s40011-021-01235-0>
- Sharma, N., & Leung, I. K. H. (2021). Novel Thermophilic Bacterial Laccase for the Degradation of Aromatic Organic Pollutants. *Frontiers in Chemistry*, 9. <https://doi.org/10.3389/fchem.2021.711345>
- Shraddha, Shekher, R., Sehgal, S., Kamthania, M., & Kumar, A. (2011). Laccase: Microbial sources, production, purification, and potential biotechnological applications. In *Enzyme Research* (Vol. 2011, Issue 1). <https://doi.org/10.4061/2011/217861>
- Shrestha, P., Joshi, B., Joshi, J., Malla, R., & Sreerama, L. (2016). Isolation and Physicochemical Characterization of Laccase from *Ganoderma lucidum*-CDBT1 Isolated from Its Native Habitat in Nepal. *BioMed Research International*, 2016. <https://doi.org/10.1155/2016/3238909>
- Singh, G., Capalash, N., Goel, R., & Sharma, P. (2007). A pH-stable laccase from alkali-tolerant γ -proteobacterium JB: Purification, characterization and indigo carmine degradation. *Enzyme and Microbial Technology*, 41(6–7), 794–799. <https://doi.org/10.1016/j.enzmictec.2007.07.001>
- Solís, M., Solís, A., Pérez, H. I., Manjarrez, N., & Flores, M. (2012). Microbial decolouration of azo dyes: A review. In *Process Biochemistry* (Vol. 47, Issue 12, pp. 1723–1748). <https://doi.org/10.1016/j.procbio.2012.08.014>
- Sondhi, S., Kaur, R., & Madan, J. (2021). Purification and characterization of a novel white highly thermo stable laccase from a novel *Bacillus* sp. MSK-01 having potential to be used as anticancer agent. *International Journal of Biological Macromolecules*, 170, 232–238. <https://doi.org/10.1016/j.ijbiomac.2020.12.082>
- Sorrentino, I., Carrière, M., Jamet, H., Stanzione, I., Piscitelli, A., Giardina, P., & Le Goff, A. (2022). The laccase mediator system at carbon nanotubes for anthracene oxidation and femtomolar electrochemical biosensing. *Analyst*, 147(5), 897–904. <https://doi.org/10.1039/d1an02091a>
- Susskind, L., & Jain, R. (n.d.). *Strategies for Sustainability Series Editors*. <http://www.springer.com/series/8584>
- Toledo-Núñez, C., López-Cruz, J. I., & Hernández-Arana, A. (2012). Thermal denaturation of a blue-copper laccase: Formation of a compact denatured state

- with residual structure linked to pH changes in the region of histidine protonation. *Biophysical Chemistry*, 167, 36–42. <https://doi.org/10.1016/j.bpc.2012.04.004>
- Van der Zee, F. P., & Cervantes, F. J. (2009). Impact and application of electron shuttles on the redox (bio)transformation of contaminants: A review. In *Biotechnology Advances* (Vol. 27, Issue 3, pp. 256–277). <https://doi.org/10.1016/j.biotechadv.2009.01.004>
- Wang, J., Zhang, R., Zhu, G., Wang, L., Bai, H., Qian, Y., Zhou, X., Yin, Q., & Zhang, Y. (2023). Expression of a deep-sea bacterial laccase from *Halomonas alkaliantartica* and its application in dyes decolorization. *Annals of Microbiology*, 73(1). <https://doi.org/10.1186/s13213-023-01723-w>
- Wang, S., Meng, X., Zhou, H., Liu, Y., Secundo, F., & Liu, Y. (2016). Enzyme stability and activity in non-aqueous reaction systems: A mini review. In *Catalysts* (Vol. 6, Issue 2). MDPI. <https://doi.org/10.3390/catal6020032>
- Wolfenden, B. S., & Willson, R. L. (n.d.). *Radical-cations as Reference Chromogens in Kinetic Studies of One-electron Transfer Reactions : Pulse Radiolysis Studies of 2,2'-Azinobis-ethyl benzthiazoline-6-sulphonate*.
- Xu, F. (1997). Effects of Redox Potential and Hydroxide Inhibition on the pH Activity Profile of Fungal Laccases*. In *THE JOURNAL OF BIOLOGICAL CHEMISTRY* (Vol. 272, Issue 2). <http://www-jbc.stanford.edu/jbc/>
- Yadav, A., Yadav, P., Kumar Singh, A., kumar, V., Chintaman Sonawane, V., Markandeya, Naresh Bharagava, R., & Raj, A. (2021). Decolourisation of textile dye by laccase: Process evaluation and assessment of its degradation bioproducts. *Bioresource Technology*, 340. <https://doi.org/10.1016/j.biortech.2021.125591>
- Yang, J., Zhang, Y., Wang, S., Li, S., Wang, Y., Wang, S., & Li, H. (2020). Biodegradation of crystal violet mediated by CotA from *Bacillus amyloliquefaciens*. *Journal of Bioscience and Bioengineering*, 130(4), 347–351. <https://doi.org/10.1016/j.jbiosc.2020.05.005>
- Yanto, D. H. Y., Anita, S. H., & Solihat, N. N. (2024). Enzymatic degradation and metabolic pathway of acid blue 129 dye by crude laccase from newly isolated *Trametes hirsuta* EDN 082. *Biocatalysis and Biotransformation*, 42(2), 129–139. <https://doi.org/10.1080/10242422.2022.2138360>
- Yuan, T., Zhang, S., Chen, Y., Zhang, R., Chen, L., Ruan, X., Zhang, S., & Zhang, F. (2021). Enhanced Reactive Blue 4 Biodegradation Performance of Newly Isolated white rot fungus *Antrodia* P5 by the Synergistic Effect of Herbal Extraction Residue. *Frontiers in Microbiology*, 12. <https://doi.org/10.3389/fmicb.2021.644679>

- Zeng, X., Cai, Y., Liao, X., Zeng, X., Li, W., & Zhang, D. (2011). Decolorization of synthetic dyes by crude laccase from a newly isolated *Trametes trogii* strain cultivated on solid agro-industrial residue. *Journal of Hazardous Materials*, 187(1–3), 517–525. <https://doi.org/10.1016/j.jhazmat.2011.01.068>
- Zhang, R., Wang, L., Han, J., Wu, J., Li, C., Ni, L., & Wang, Y. (2020). Improving laccase activity and stability by HKUST-1 with cofactor via one-pot encapsulation and its application for degradation of bisphenol A. *Journal of Hazardous Materials*, 383. <https://doi.org/10.1016/j.jhazmat.2019.121130>
- Zhang, Y., & Rochefort, D. (2011). Activity, conformation and thermal stability of laccase and glucose oxidase in poly(ethyleneimine) microcapsules for immobilization in paper. *Process Biochemistry*, 46(4), 993–1000. <https://doi.org/10.1016/j.procbio.2011.01.006>